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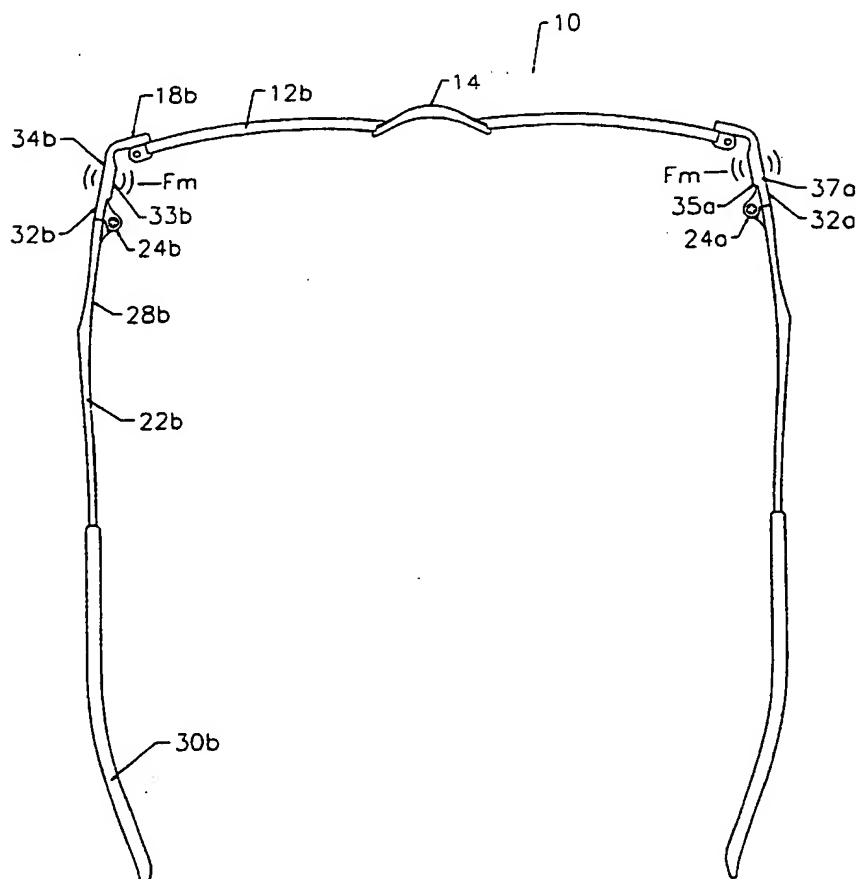
— With international search report.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PIVOTABLE AUXILIARY LENSES FRAME AND PRIMARY LENSES FRAME FOR EYEGLASSES WITH MAGNETIC CLIP-ON MECHANISM



(57) Abstract: A spectacle frame combination having an auxiliary lenses frame magnetically and pivotably attached to a primary lenses frame. The primary lenses frame has an integral magnetic portion generating a magnetic field on both the inner and outer surfaces of the temple member. The auxiliary frame may be attached to either the inner or outer surface of the primary frame by the cooperation of magnetic end portions with the complimentary magnetic portion of the primary frame.

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1
2 TITLE: PIVOTABLE AUXILIARY LENSES FRAME AND PRIMARY LENSES
3 FRAME FOR EYEGLASSES WITH MAGNETIC CLIP-ON MECHANISM
4
5
6

7 BACKGROUND OF THE INVENTION

8 The present invention relates to spectacle or eyeglass frames; and, more particularly, to
9 a combination of a primary frame and an auxiliary frame magnetically attachable to one another.
10 The auxiliary frame may be attached to either the inner surface or outer surface of the primary
11 frame temple member and be pivotable from a first position to a second position.

12 The prior art teaches that magnetic mechanisms may be used to affix or position auxiliary
13 eyeglass frames to a primary eyeglass frame. Various mechanisms are shown in U.S. Pat. Nos.
14 5,568,207; 5,243,366; 5,181,051; 4,196,981; and 4,070,103. However, none of the prior art
15 teaches or discloses an integral magnetic mechanism for enabling the auxiliary frame to be
16 attached on either the inner or outer surface of the temple member of the primary frame and still
17 allow the auxiliary frame to be pivoted upward away from a parallel alignment of the lenses of
18 both the primary and auxiliary frame.

19 SUMMARY OF THE INVENTION

20 A spectacle frame combination including an auxiliary lenses frame magnetically and
21 pivotably attachable to a primary lenses frame. The rearwardly extending temple members of the
22 primary frame each incorporate an integral magnetic section which generates a magnetic field
23 along both the outer and inner surfaces of a front section of the temple member forward the
24 temple hinge. The auxiliary frame has rearwardly extending engagement arms which each

1 incorporate an integral magnetic portion for rotatable attachment to complimentary sections of
2 the integral magnetic portion of the front section of the temple members.

3 BRIEF DESCRIPTION OF THE DRAWINGS

4 Fig. 1A is a front elevation view of the primary lenses frame of the present invention.

5 Fig. 1B is a side elevation view of the primary lenses frame of the present invention.

6 Fig. 1C is a top plan view of the primary lenses frame of the present invention.

7 Fig. 2A illustrates a front elevation view of one embodiment of the auxiliary lenses frame
8 of the present invention.

9 Fig. 2B illustrates a top plan view of the embodiment of Fig. 2A of the present invention.

10 Fig. 3A shows a front elevation view of the combination of the present invention with the
11 auxiliary frame of Fig. 2A.

12 Fig. 3B shows a side elevation view of the combination of the present invention with the
13 auxiliary frame of Fig. 2A in a first position.

14 Fig. 3C shows a top plan view of the combination of the present invention with the
15 auxiliary frame of Fig. 2A.

16 Fig. 3D shows a top plan view of the combination of the present invention with the
17 auxiliary frame of Fig. 2A in a second position (in broken lines).

18 Fig. 4A is a front elevation view of another embodiment of the auxiliary lenses frame of
19 the present invention.

20 Fig. 4B illustrates a top plan view of the auxiliary lenses frame of Fig. 4A.

21 Fig. 4C shows a top plan view of the combination of the present invention with the
22 auxiliary lenses frame of Fig. 4A.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Fig. 1A illustrates a front elevation view of the primary lenses frame of the present invention. Primary frame 10 has the conventional eyepiece rims 12a and 12b and lenses 20a and 20b. These may be any shape desired by the designer or wearer. The rims are joined by bridge 14 and are provided with nose pieces 16a and 16b. Also seen in Fig. 1A are the face sections 18a and 18b of the hinged temple members of the frame.

A side elevation view of the frame 10 is shown in Fig. 1B. Lens member 20b is affixed in rim 12b. The side temple member 22b is L-shaped and extends generally rearwardly from the front of the frame 10. A hinge 24b connects a front section 26b and rear section 28b of the temple member 22b. An ear section 30b completes the distal section of the temple member.

Attention is directed to the front section 26b forward of hinge 24b. An integral primary magnetic portion 32b is formed along the front section 26b of the temple member 22b. Magnetic portion 32b generates a magnetic field F_m along both the inner 33b and outer surfaces 34b of the front section 26b.

Fig. 1C is a top plan view which illustrates that primary magnetic portions 32a and 32b of the temples generate a magnetic field F_m on the inner surfaces 35a and 33b and the outer surfaces 37a and 34b of the front sections 32a and 32b.

Turning to Figs. 2A and 2B, one embodiment of the auxiliary lenses frame 40 of the present invention is shown. Again, a bridge 42 connects the eyepiece rims 44a and 44b. The rims are designed to retain and support auxiliary lenses 46a and 46b. Extending outwardly and rearwardly are L-shaped, engagement arms 48a and 48b. At the distal end of each arm is an integral auxiliary magnetic portion 50a and 50b which cooperates with complimentary primary

1 magnetic portions 32a and 32b of the primary frame 10 to rotatably secure and retain the
2 auxiliary frame 40 to the primary frame 10.

3 The combination of the present invention is shown in Figs. 3A-3D. In Fig. 3A a front
4 elevation view shows the auxiliary frame 40 attached to the primary frame 10. Engagement arms
5 48a and 48b extend over and around face sections 18a and 18b and engage integral auxiliary
6 magnetic portion 50a and 50b with outer surfaces 34b and 37a of integral magnetic portions 32b
7 and 32a, respectively. Fig. 3B shows a side elevation view of the combination with engagement
8 arm 48b extending along outside surface 34b of frame 10. Auxiliary magnetic portion 50b is
9 magnetically coupled to primary magnetic portion 32b as a result of the cooperation of the
10 complimentary magnetic portions. Fig. 3C is a top plan view illustrating the engagement of the
11 auxiliary magnetic portions 50b and 50a with the outside surface 34b and 37a, respectively, of
12 the front sections 26b and 26a.

13 Fig. 3D illustrates that the auxiliary lenses frame 40 (shown in broken lines for clarity)
14 may be rotated about the magnetic attachment. Because the magnetic fields F_m extend outwardly
15 from the surfaces of the parts, there is no need for the precise fit necessary in prior art devices.
16 Fig. 3D shows that magnetic portion 50b has engaged primary magnetic portion 32b at a forward
17 edge of the portion 32b.

18 Thus, the auxiliary spectacle lenses frame 40 may be rotated from a first down position
19 in which the primary lenses 20a and 20b and the auxiliary lenses 46a and 46b are generally in
20 parallel alignment to a second position where the auxiliary lenses 46a and 46b are generally
21 moved upwardly and out of the line of sight; a position more generally perpendicular to the
22 primary lenses.

1 As will be described below, this rotational aspect may be achieved even when the
2 auxiliary lenses frame 40 is affixed on the inside surface 35a or 33b of the front section of the
3 temple member.

4 Figs. 4A-4C show a second embodiment of the auxiliary lenses frame 60 with bridge 62;
5 rims 64a and 64b; engagement arms 68a and 68b; and auxiliary magnetic portions 70a and 70b.
6 Fig. 4C specifically shows how the auxiliary frame 60 engages with primary frame 10 in a top
7 plan view. The auxiliary magnetic portions 70a and 70b rotatably attach to the inner surfaces
8 33b and 35a of the frame 10. Engagement arms 68a and 68b extend over the top of face sections
9 18a and 18b of frame 10. Auxiliary frame 60 may be rotated upwardly as previously discussed
10 in the embodiment shown in Figs. 3A-3D.

11 Although the invention has been described with reference to a specific embodiment, this
12 description is not meant to be construed in a limiting sense. On the contrary, various
13 modifications of the disclosed embodiments will become apparent to those skilled in the art upon
14 reference to the description of the invention. It is therefore contemplated that the appended
15 claims will cover such modifications, alternatives, and equivalents that fall within the true spirit
16 and scope of the invention.

1 CLAIMS:

2
3 1. A spectacle frame combination comprising:

4 a primary spectacle frame for supporting primary lenses therein, said primary spectacle
5 frame having generally rearwardly extending temple members, each of said
6 temple members having a front section, a rear section, and a hinge member, said
7 front section forward of said hinge separating said front and said rear sections,
8 said front section having an integral magnetic portion along said front section of
9 said temple member and generating a magnetic field along both an outer surface
10 and an inner surface of said front section of said temple member; and

11 an auxiliary spectacle frame for supporting auxiliary lenses therein, said auxiliary
12 spectacle frame having generally rearwardly extending engagement arms, each
13 of said engagement arms having an integral magnetic portion for rotatable
14 magnetic attachment to complimentary sections of said integral magnetic portion
15 of said front section of said temple member.

16
17 2. The combination of claim 1 wherein said integral magnetic portion of each of said generally
18 rearwardly extending engagement arms of said auxiliary spectacle frame rotatably attach to an
19 outer surface of said complimentary sections of said integral magnetic portion of said front
20 section of said temple member.

1 3. The combination of claim 1 wherein said integral magnetic portion of each of said generally
2 rearwardly extending engagement arms of said auxiliary spectacle frame rotatably attach to an
3 inner surface of said complimentary sections of said integral magnetic portion of said front
4 section of said temple member.

5
6 4. The combination of claim 1 wherein said auxiliary spectacle frame may be rotated from a first
7 position in which said primary lenses and said auxiliary lenses are generally in parallel alignment
8 to a second position wherein said auxiliary lenses are positioned above and out of a line of sight
9 through said primary lenses.

10

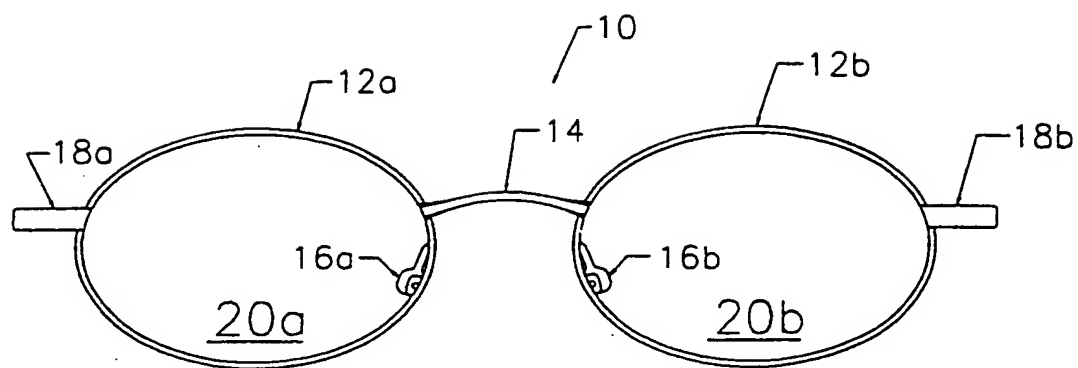


FIG 1A

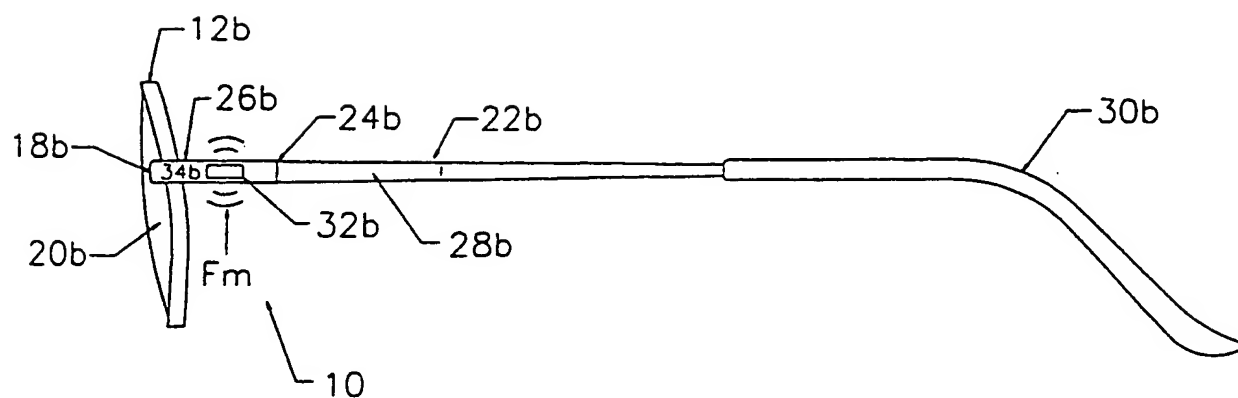


FIG 1B

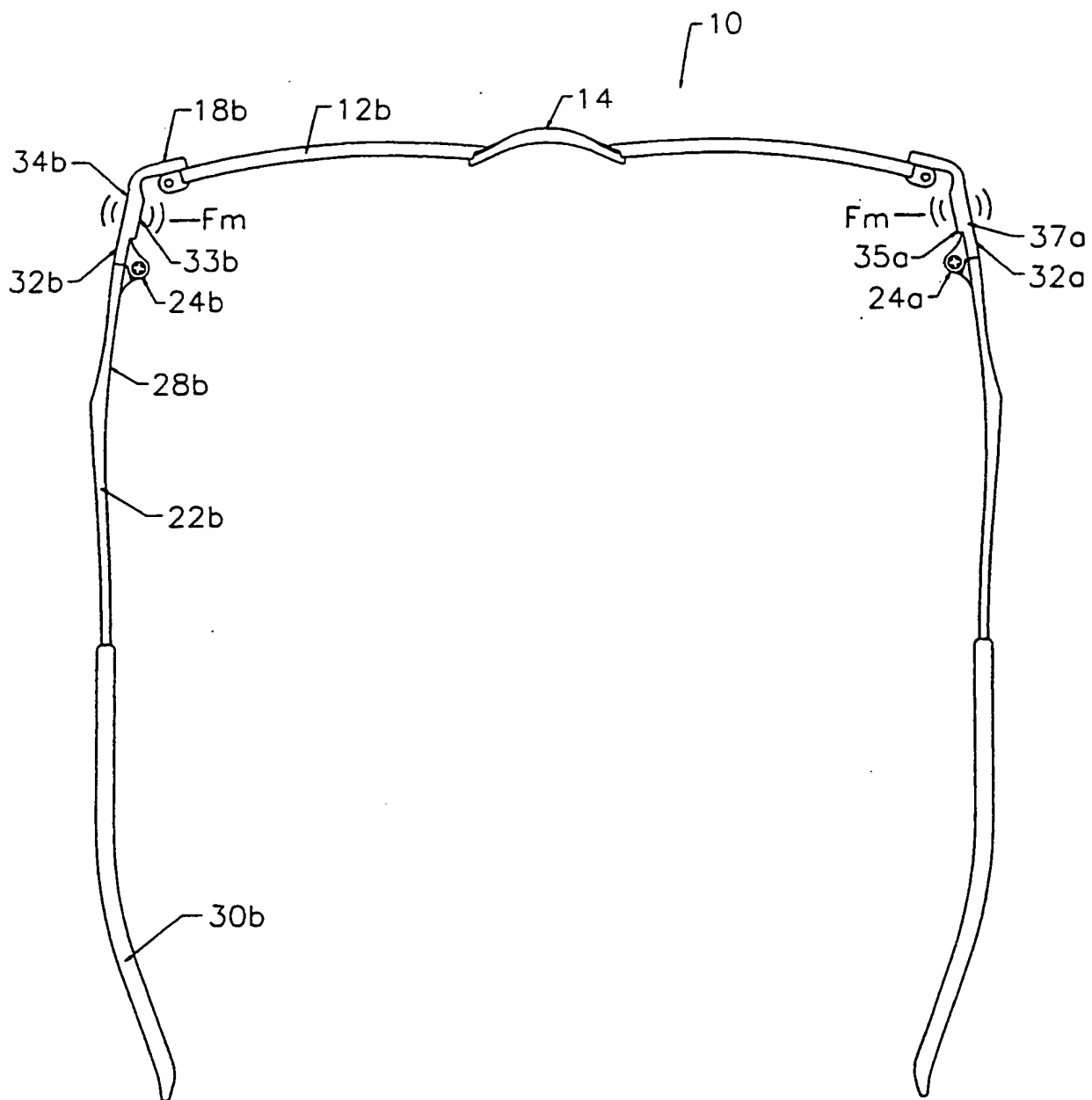


FIG 1C

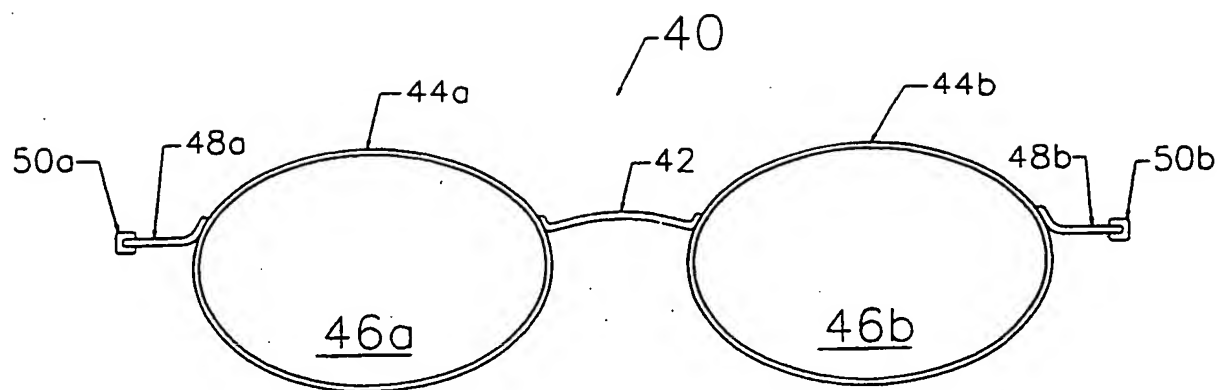


FIG 2A

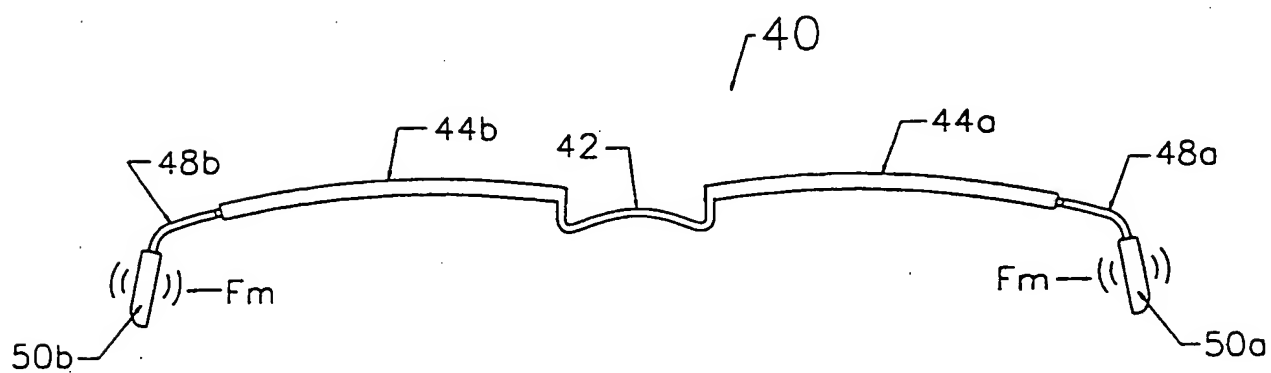


FIG 2B

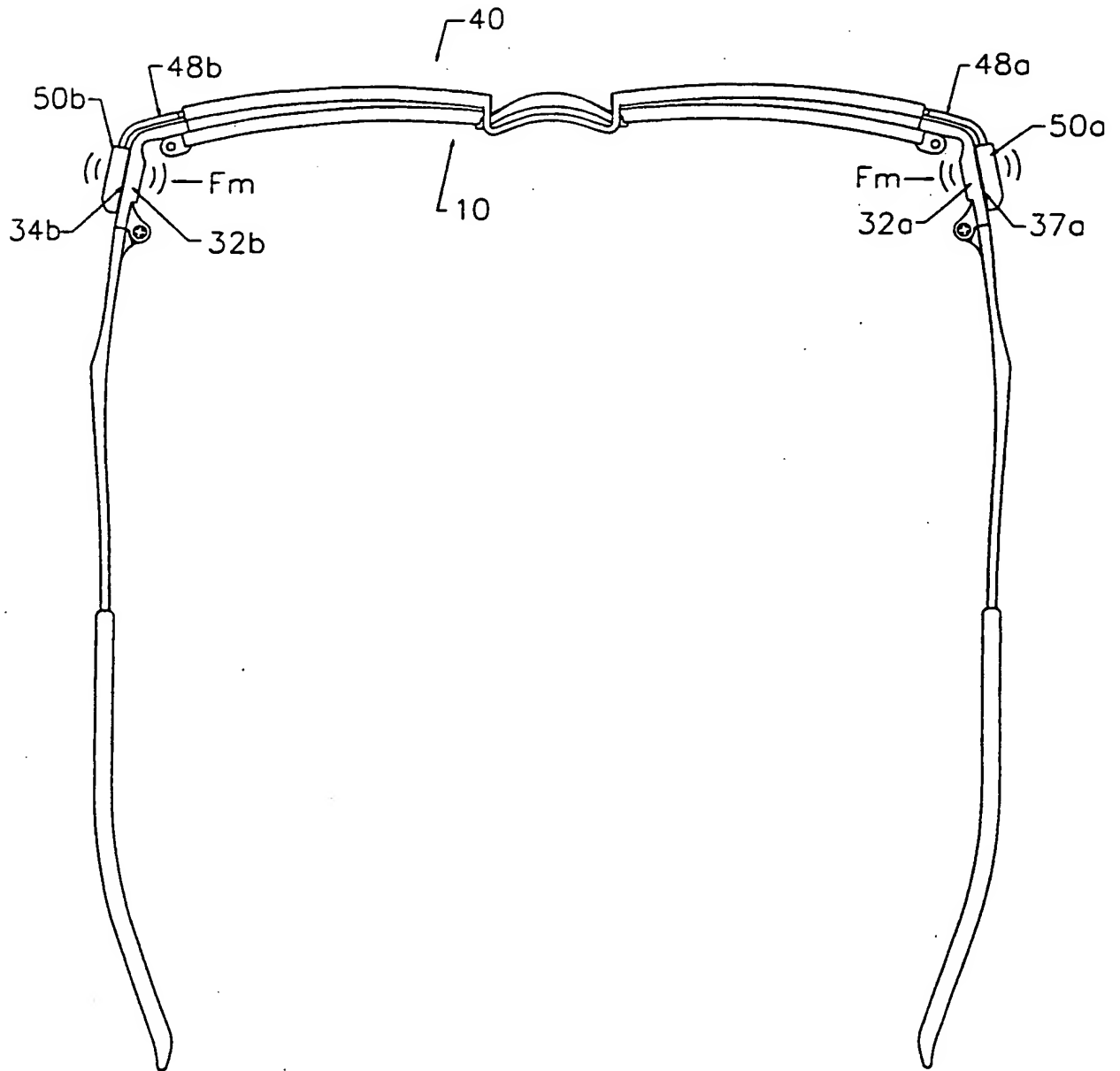


FIG 3C

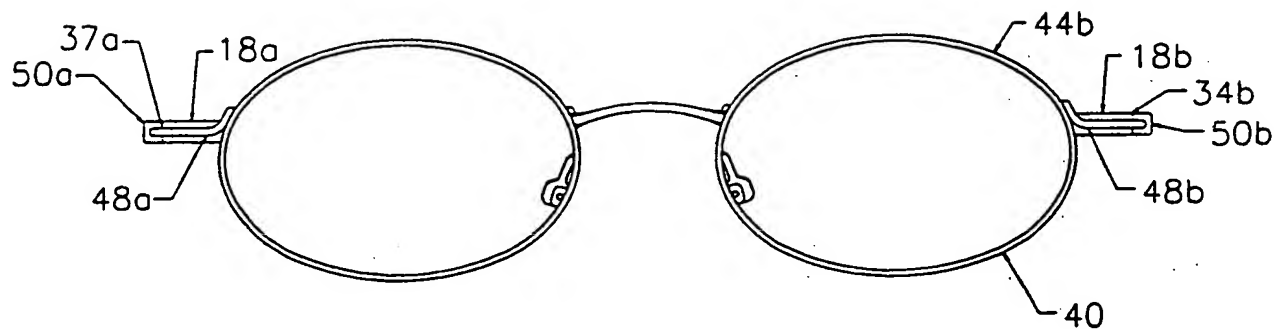


FIG 3A

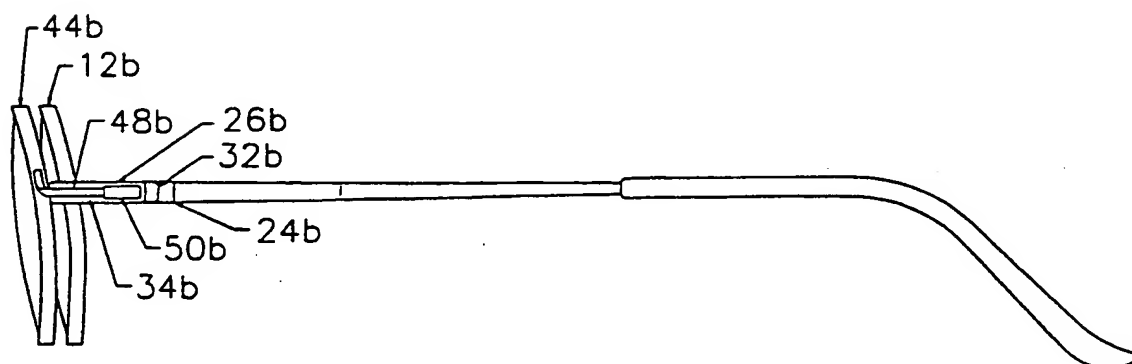


FIG 3B

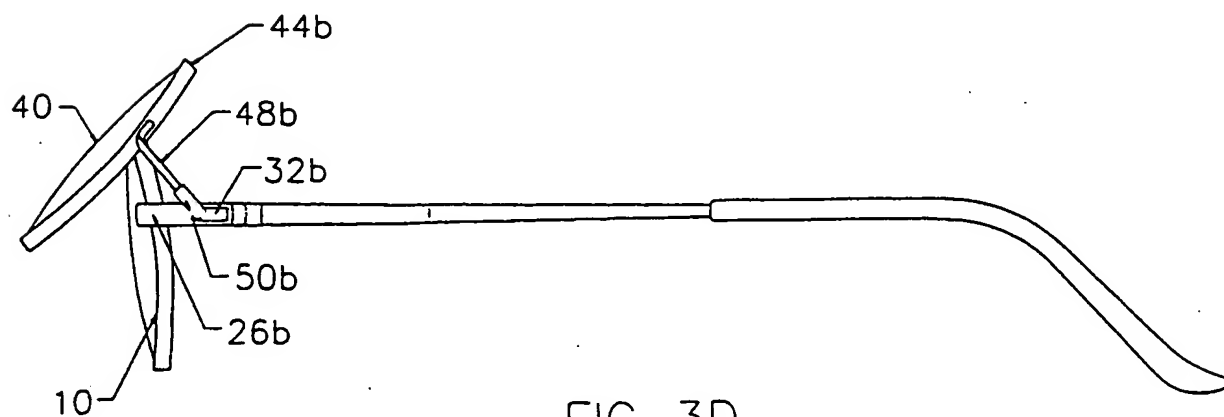


FIG 3D

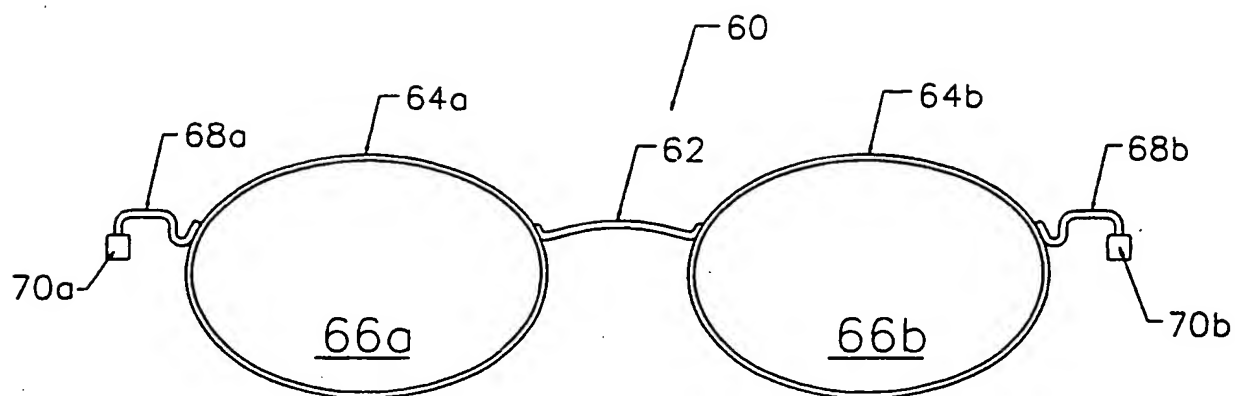


FIG 4A

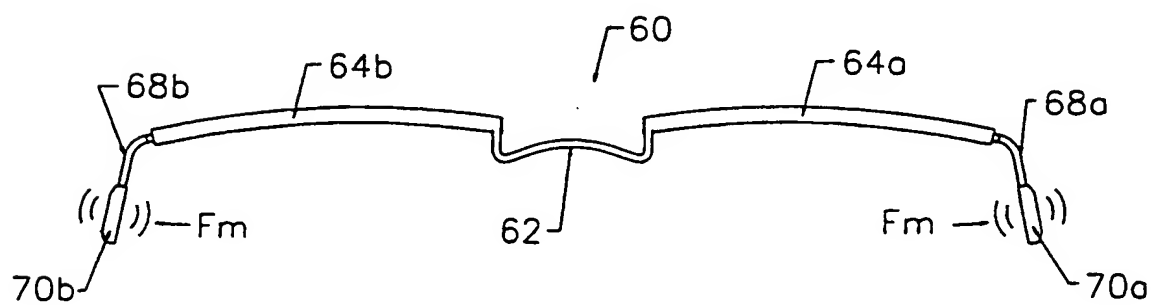


FIG 4B

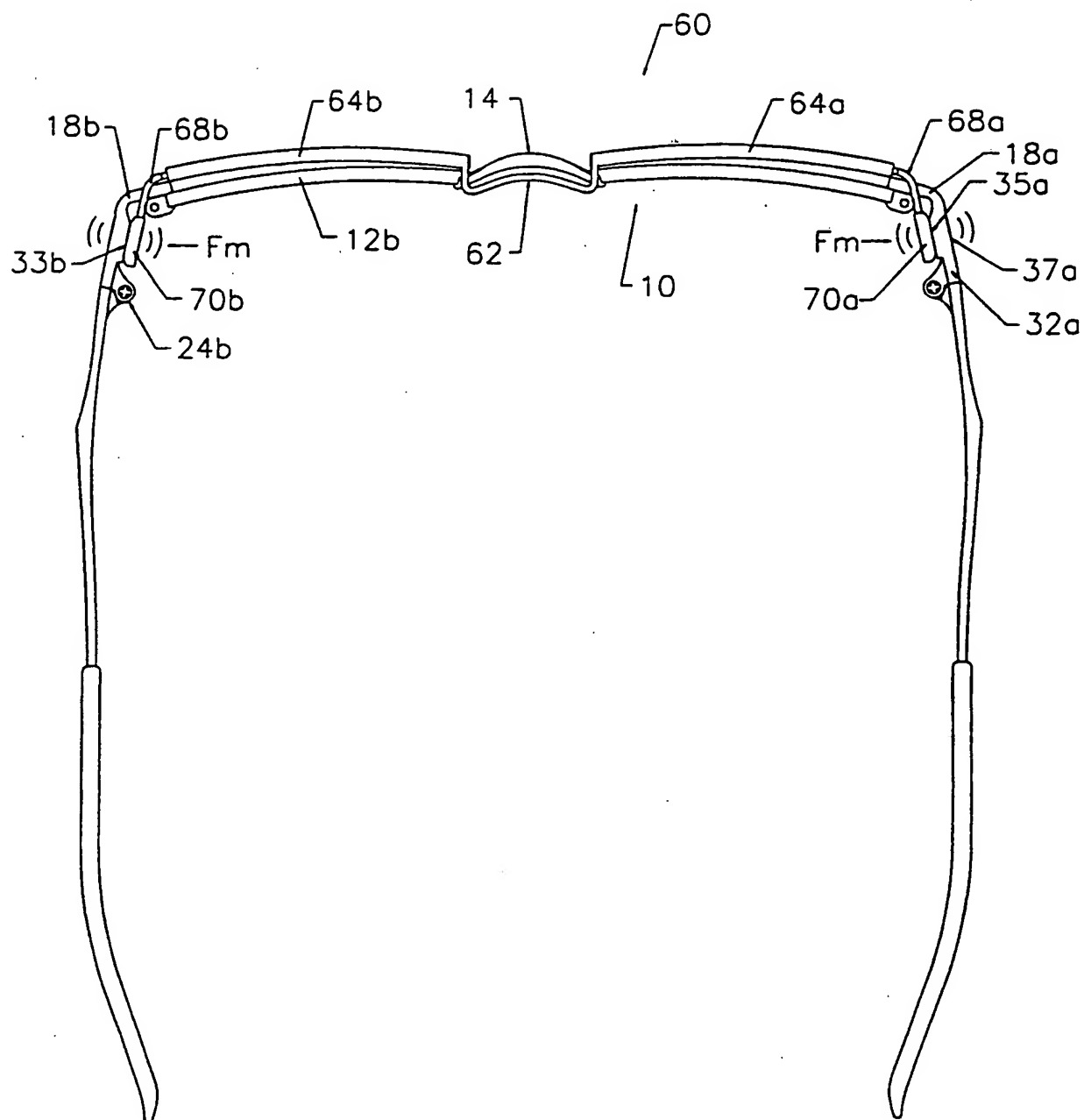


FIG 4C

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN99/00118

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) G02C 3/02, G02C 7/08, G02C 9/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(6) G02C 3/00, G02C 3/02, G02C 5/14, G02C 5/20, G02C 7/02, G02C 7/08, G02C 9/00, G02C 9/04, G02C 11/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Chinese Patent Document (1985 ~ Aug.1999)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNPAT EPODOC WPI PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CN,B.2326978Y(GU Guo-sheng) 30.06.99 Description P1. L17-20 & P2. L5-12	1,3
Y	US,A,5,642,177(Sunreeve Co., Ltd.) 24.06.97 Cl. L37-52	1,2
A	US,A,4,196,981(Jefferson P. Waldrop) 08.04.80 Cl. L8-11 & Cl. L33-C2. L16	4

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim (S) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
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16 SEP 1999 (16.09.99)

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CHEN Rui-feng



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/CN99/00118

CN 2326978Y	30.06.99	none	
US 5.642.177	24.06.97	EP 0743545 A1	20.11.96
		SG 50374 A1	20.07.98
		CN 1117593	28.02.96
US 4,196,981	08.04.80	none	